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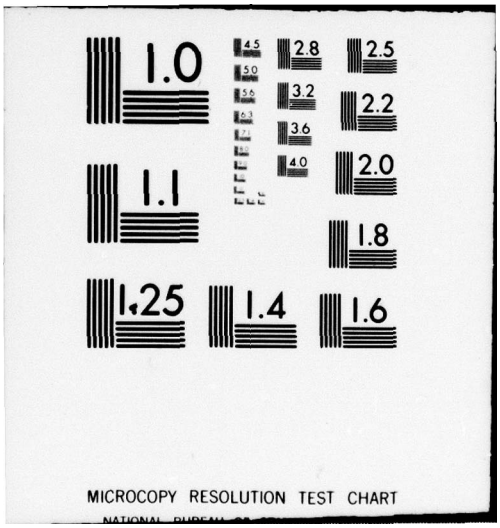
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DUTY MODULES: AN APPROACH TO THE IDENTIFICATION AND CLASSIFICATION OF PERSONNEL RESOURCES AND REQUIREMENTS

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PERSONNEL AND MANPOWER TECHNICAL AREA

U. S. Army
Research Institute for the Behavioral and Social Sciences

June 1979

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A job analysis concept was developed for representing work activities at a level more specific than a Military Occupational Specialty (MOS) and more general than a "task." This early phase of the research was intended to (a) develop and refine the concept, (b) develop methods and formats for applying the concept to Army jobs, and (c) provide an evaluation of its feasibility and utility for analyzing Army jobs. Specifically, the research evaluated the feasibility of using a set of duty modules to adequately

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represent duty positions of members of an infantry platoon and of using job content data, expressed in duty module format, as a basis for evaluating unit performance.

The basic procedure in developing a duty module consisted of having Army occupational analysts examine task inventory and/or job analysis data for several different specialties and grouping together those tasks which appeared to cluster together in a meaningful way, primarily occupational homogeneity. Ideally, duty modules should be mutually exclusive; they should not encompass, overlap, or depend on other modules. They must be specific enough to describe the essential, significant, and continuing work activities of a position and, at the same time, be general enough to apply across various positions and occupational specialties.

Thirty-one enlisted and 93 officer duty modules were developed, field tested, and revised. Field reactions were highly favorable to using the officer duty modules to describe work activity requirements. In addition, techniques for employing duty modules to describe both unit capabilities and performance worked well when subjected to a pilot test during a field training exercise. The use of duty modules in describing jobs, setting requirements, and evaluating unit and job performance is promising.

The report is written for behavioral psychologists.

Technical Paper 367

DUTY MODULES: AN APPROACH TO THE IDENTIFICATION AND CLASSIFICATION OF PERSONNEL RESOURCES AND REQUIREMENTS

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FOREWORD

The Army Research Institute for the Behavioral and Social Sciences (ARI) has pioneered in developing the concept of the duty module, an aid to military manpower selection, assignment, training, and performance evaluation. A duty module groups important related job activities into a distinctive, codifiable cluster, more specific than a Military Occupational Specialty and more general than a single task, that may apply to a number of different positions. This report documents an early stage of the research, describing the concept, using it to develop 124 officer and enlisted personnel duty modules, and evaluating its feasibility and potential usefulness to the Army.

Research on duty modules was done primarily by personnel of ARI's Personnel and Manpower Technical Area, augmented by contracts with organizations selected for their ability in the field. This report is based in part on work done by the American Institutes for Research under contract DAHC19-71-C-0004. The research was done under Army Project 2Q762717A766 and is responsive to requirements of the Office of the Deputy Chief of Staff for Personnel (DCSPER) in support of the Officer Personnel Management System (OPMS) and the Enlisted Personnel Management System (EPMS).

JOSEPH ZEIDNER
Technical Director

DUTY MODULES: AN APPROACH TO THE IDENTIFICATION AND CLASSIFICATION OF PERSONNEL RESOURCES AND REQUIREMENTS

BRIEF

Requirement:

To develop an approach for describing jobs to represent work activities at a level more specific than a Military Occupational Specialty (MOS) and more general than a task, for use in selection, assignment, training, and performance evaluation. This phase of the research was conducted to (a) develop and refine the concept of a duty module, (b) develop methods and formats for applying the concept to Army jobs, and (c) to provide an evaluation of the concept's feasibility and utility for describing Army jobs.

Procedure:

Army occupational analysts examined task inventory and job analysis data for a variety of specialties. Tasks which appeared to cluster together were grouped together, primarily with respect to occupational homogeneity. Ideally, duty modules should be mutually exclusive; they should not overlap or depend on each other in any way. They must be specific enough to describe the essential, significant, and continuing work activities of a position, but also be general enough to apply to various positions and occupational specialties.

In this phase of the research, 31 enlisted and 93 officer duty modules were developed, field tested, and revised. The research also evaluated the feasibility of using a set of duty modules to represent duty positions of 334 enlisted infantry company personnel and 518 officers in Infantry and Quartermaster Branches and of using job content data expressed in duty module format as a basis for evaluating unit performance.

Findings:

Field reactions were highly favorable to using the officer duty modules to describe work activity requirements. In addition, techniques for using duty modules to describe unit capabilities and performance worked well when subjected to a pilot test during a field training exercise. Duty modules appeared to show promise in describing jobs, setting requirements, and evaluating unit and job performance.

Utilization of Findings:

The duty module methodology has been used to define performance requirements for Army officer assignments, in support of the Officer Personnel Management System. The concept may be usable along a wide range of Army personnel and manpower problems. Recent exploratory research by the Review of Education and Training for Officers (RETO) study group identified the utility of defining all officer duty positions in terms of component duty modules and interrelationships of duty modules, in relation to training requirements and best training methods.

Before the duty module concept is ready for broad implementation, however, methods for weighting the importance and criticality of module subelements must be developed, as well as indices of commonality between different duty modules. New job descriptions, requirements, and performance evaluation techniques based on the duty module approach must be developed and evaluated for effectiveness and implications for long-range Army personnel/manpower policy goals.

DUTY MODULES: AN APPROACH TO THE IDENTIFICATION AND CLASSIFICATION OF PERSONNEL RESOURCES AND REQUIREMENTS

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DUTY MODULES: AN APPROACH TO THE IDENTIFICATION AND CLASSIFICATION OF PERSONNEL RESOURCES AND REQUIREMENTS

INTRODUCTION

Personnel concerned with the manpower problems of selection, assignment, training, and performance assessment need an adequate means to describe Army jobs. Job descriptions now available are not standardized, and they range from gross overall representations of the job to highly detailed descriptions of task elements comprising the job. The task elements involved tend to be too numerous and too varied in their level of detail across the spectrum of jobs. At the other end of the scale, gross descriptions like the Army's Military Occupational Specialty (MOS) system are too general, providing only limited information for selection, assignment, training (other than with regard to a specific MOS), and the establishment of manpower requirements.

A system is needed for describing and classifying jobs at a level detailed enough to provide the required information without being cumbersome and complicated. Such a system would provide a common language useful to individuals concerned with setting job requirements and those concerned with supplying the personnel resources to fill these requirements. Although such a system would have general applicability to the workplace, it would be especially useful in the Army, which undergoes continual adjustments in the training and utilization of personnel resources.

A job analysis concept, termed a duty module, for representing work activities at a level more specific than an MOS and more general than a task was developed. The purpose of this phase of the research was to (a) develop and refine the concept, (b) develop methods and formats for applying the concept to Army jobs, and (c) provide an evaluation of its feasibility and utility for analyzing Army jobs. Specifically, the current phase evaluated the feasibility of using a set of duty modules to adequately represent duty positions of members of an infantry platoon and of using job content data, expressed in duty module format, as a basis for evaluating unit performance.

PROCEDURE

Two experimental sets of job-descriptive duty modules were developed. The basic procedure consisted of examining task inventory and job analysis data for several different specialties and grouping together the tasks that appeared to cluster together in a meaningful way, primarily in occupational homogeneity. Ideally, each duty module is mutually exclusive and does not encompass, overlap, or depend on any other duty module. Each module must be specific enough to

describe the essential, significant, and continuing work activities of a position. At the same time, a module must be general enough to apply across various positions and occupational specialties. One set of duty modules was developed for officer jobs and another set was developed for enlisted personnel jobs. Several modules were initially designed by skilled job analysts familiar with Army jobs.

From these tentative modules, task inventories were assembled and administered to 334 enlisted infantry company personnel and 518 Infantry and Quartermaster Branch officers. The component tasks comprising each module were studied statistically for "probability of association" in actual field tests; that is, the empirical and logical relationships of the tasks in the actual work situation were determined. On the basis of these analyses, the duty modules were revised.

The duty modules were then reviewed for comprehensiveness and utility for personnel objectives in selected organizational units. Unit mission statements were prepared in which the relationship between duty modules and the capabilities of organizational units was indicated.

Finally, to assess the feasibility of using duty modules as an aid in evaluating unit performance, Army field umpires, who typically evaluate unit performance in Army Training Tests (ATTs), were provided with checklists and rating forms developed from a selected sample of applicable duty modules. These new checklists and forms were tested during the actual ATT for 15 infantry platoons.

THE DUTY MODULE CONCEPT

Although it was generally agreed that a new level of job description was necessary to be useful to persons dealing with resources and persons dealing with requirements, the design of a duty element was unresolved.

Based on synthesis of available data, an approach to structuring the description of work activities evolved; the following design criteria were applied: (a) the duty element must be meaningful and useful to requirements planners; (b) the duty element must be compatible with assignment practices in the field; and (c) the duty element must remain essentially the same, even though different aspects of an organization's mission are undertaken.

All three design criteria were implicitly concerned with probability of association among tasks under different sets of circumstances. The task clusters that resulted from the application of these design criteria were intended to be self-contained independent units of work that would be modular in the sense that they could be used as "plug-in" units to a variety of different occupational specialties. They were termed duty modules.

The design criteria were translated into the following developmental process: First, insure that personnel resource and manpower requirement planners agree on the qualification requirements needed to do a given job. Second, demonstrate compatibility with work practices in the field. For this, actual survey data regarding the way in which tasks are assigned in the field should be reviewed. Third, assure that the module is related to the capabilities of various levels of organizational units (e.g., that it represents the mission statement in terms of duty modules).

The Development of Duty Modules

The duty module concept was developed further through a series of interrelated ARI projects. In all, 93 officer duty modules and 31 enlisted duty modules were developed from the results of job analyses conducted on 518 infantry and quartermaster officers and 334 enlisted infantry personnel. Reports on the duty module concept include treatment of its rationale (Miller, 1971; Stephenson, 1972); procedures (Hadley, 1973); and evaluation (Sitterson & Wintersteen, 1974).

The current procedure used for developing duty modules is a pragmatic one. It was shaped to a great extent by the means and resources that were available, convenient, and expeditious. Although care was taken to insure accuracy and consistency, the development cycle was not tightly bound by inviolate steps and procedures. Nevertheless, certain working criteria were developed to assist in building and standardizing duty modules. Some of the more salient of these are (Sitterson & Wintersteen, 1974):

1. To be valid, the duty modules for any given position must be accurate and sufficient in describing the essential, truly significant, continuing work activity requirements of the position.

2. To be modular and useful, duty modules must be standardized to apply across a variety of different positions and occupational specialties, insofar as those positions actually have task clusters in common.

3. Each duty module should be a self-contained functional entity. It must not encompass, overlap, or depend on another duty module assigned to the same position.

4. A duty module should represent a distinctive, coherent, and important part of the position, important in terms either of criticality or proportion of time spent on it.

5. A duty module should represent an integral part of the position, usually part of the primary duty assignment.

Enlisted Duty Modules

The first task in the development of enlisted duty modules was to design provisional modules from task statements for a selected number of MOS. These task statements were taken from the Military Occupations Data Bank (MODB), which was designed and is maintained by the Office of Personnel Operations (OPO) (now part of the U.S. Army Military Personnel Center). MODB is a computer-oriented information system for the gathering, storing, retrieving, and summarizing of occupational data (Davis, 1969). The current version (MODB-1)[1] contains information on more than 80,000 tasks that describe several hundred MOS (Meyer, 1968; 1969a; 1969b; 1969c).

Task inventories for a variety of different MOS were obtained. The tasks were grouped together in terms of the qualification requirements for different specialties and types of units. If, for example, a vehicle driver must be able to perform certain kinds of vehicle maintenance, one might include some maintenance tasks in the definition of a duty module associated with driving the vehicle. Some tasks, of course, would be reserved for maintenance specialists and would not be required of the vehicle driver. The Army has experience in dividing up such responsibilities, and the best starting point for the design of systems-related job content modules of the type proposed was to let persons who design Army training course curriculums organize task statements into job-content modules.

Hadley (1973) has pointed out that job analyses designed primarily for personnel management purposes, such as the preparation of duty modules, are not suitable for training course curriculum construction. Personnel management is generally concerned with the similarities among jobs, whereas the training course curriculum builder is more interested in the differences among jobs. This does not mean that job analysis and the resulting duty modules are not extremely useful in making decisions concerning training and utilization of personnel, particularly in the case of "skill" courses rather than courses of a developmental or career building type. In skill courses, duty modules can be directly employed in such decisions as transferability, or "trade-off," of personnel from old to new equipment, determination of whether schooling for a new job can be conducted on the job or must be formal classroom training, and in selection of the aptitudes and job experience required for entrance to training in a new or greatly modified skill.

Initial work on enlisted duty modules was conducted by experts working with punched cards on which the various MODB task statements had been keypunched. Many of the task statements were discarded for various reasons, since MODB had been developed on a crash time schedule

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[1] Department of the Army Regulation 611-3. Personnel Selection and Classification: Military Occupational Data Bank (MODB), 6 November 1969.

and the preference had been to gather an excess of data rather than not enough. Other task statements were found to be redundant and were grouped together. Some of the more minor tasks were combined, and a new task statement was prepared. Conversely, some of the more complicated task statements were divided into component tasks to be more consistent in scope with other task statements in the inventory.

The important point about these task grouping and task redefinition activities is that they were not based upon a single MOS. In order to make task statements "modular" in the sense that they have equivalent meaning in several <u>different</u> occupational specialties, both related and different MOS were considered. The MOS chosen initially were all the MOS involved in an armored cavalry reconnaissance platoon; later, the focus was on an infantry rifle company, and additional MOS were added. Finally, some MOS were added in an effort to reflect job content of enlisted staff positions one echelon above the units being studied. In all, 16 enlisted MOS were studied:

11B, Light Weapons Infantryman
11C, Infantry Indirect Fire Crewman
11D, Armor Reconnaissance Specialist
11E, Armor Crewman
11F, Infantry Operations and Intelligence Specialist
11G, Infantry Senior Sergeant
11H, Infantry Direct Fire Crewman
31B, Field Radio Mechanic
31G, Tactical Communication Chief
36K, Field Wireman
63C, Track Vehicle Mechanic
71B, Clerk-Typist
71H, Personnel Specialist
76A, Supplyman
76Y, Armorer-Unit Supply Specialist
94B, Cook

A total of 31 enlisted job content modules were identified. These 31 enlisted modules were considered to account for all the job-content qualification requirements for the 16 different MOS used in the design process.

The enlisted duty modules derived were then subjected to the review of 30 enlisted men at Fort Myer, Va., and 30 enlisted men at Fort Meade, Md. They read the modular descriptions of their MOS and judged whether each module was appropriate and whether additional modules were needed to fully describe their MOS. The duty modules were then revised and were ready for field testing.

Field Test and Application

The objective of the field test was to determine the suitability of using job content data expressed in duty module format as a basis for predicting and evaluating unit performance. It was thought that a field test exercise would provide a vehicle for applying in a concrete situation the concepts developed. The field test had two objectives:

1. To obtain further construct validity data from MOS incumbents that the duty modules assigned could be used to describe their duty positions fully and completely.

2. To determine the applicability of duty modules in improving the accuracy, specificity, and objectivity of both individual and unit proficiency measures in an Army Training Test (ATT) situation. A plan was prepared for the field testing of duty modules so as to produce the statistically reliable data necessary for empirical verification. Although initial plans called for tryout with 30 rifle platoons, only 15 were available because of a current policy of decentralized training responsibility and a heavy ROTC camp commitment.

Arrangements were made for the collection of data just prior to the ATTs for five infantry rifle companies (representing the 15 platoons). A total of 334 enlisted personnel completed task inventory surveys in which they indicated the extent to which they performed each duty module, as well as each task within each duty module. The packaged survey presented to each enlisted person included task inventory pages for the duty modules that had been designated a priori as appropriate for his MOS. He was then asked to check one of the following four categories to describe his activities in each task that defined a given module: supervise, do and supervise, do, and assist. An example of a duty module and the task inventory format is shown in Figure 1. (Over 80% of the tasks in each module were checked by those designated as responsible for performing the tasks. Virtually every task in each duty module was checked at at least one level.)

Application of Duty Modules in Field Evaluation

Army Training Tests are formal tests administered to evaluate the combat readiness of a newly trained unit. Each ATT has a highly detailed scenario (e.g., attack, retrograde defense), a checklist for evaluating performance during the test, instructions for umpires, and other requirements. Many phases of a test are concerned with a specific capability of the unit involved. Moreover, the information in the scenario is at such a level of detail that the activities of various members of the unit can be readily translated into tasks and duty modules. It was hypothesized that a "modularized" scoring sheet (i.e., tasks grouped by duty modules) would enable the umpires to be

AIR Duty Module Survey Form (Rev1974)

Identification No._____

Date: January 1976 Code:

DUTY MODULE O-A-2 Performs general administration	(5) Direct	(4) Supervise	(3) Do and supervise	(2) Do	(1) Assist	(0) Not applicable
0014 Prepare administrative SOPs and instruction.						
0015 Monitor security of classified documents.						
0003 Prepare and review administrative correspondence, memoranda, and reports.						
0006 Establish and monitor arrangements for collection and distribution of mail within unit.						
0008 Screen incoming correspondence and distribute for action or information.						
0017 Establish and operate suspense system.						
0018 Authenticate orders and official correspondence.						
0019 Establish and post files of records and regulations.						
0012 Review, interpret and apply directives and information.						
0020 Schedule appointments, conferences, and other such activities.						
0021 Provide for reproduction and duplication services.						
0004 Prepare and review unit journal, historical records and morning report (or change reports for centralized systems).						
0005 Administer unit funds.						
0007 Establish and operate unit message center.						
0013 Prepare daily bulletin or similar publication.						

	(0) Not applicable	(1) Little applicability	(2) Several of tasks	(3) Majority of tasks	(4) All of tasks
1. DO MODULE AND TASKS APPLY TO YOUR POSITION					
a. In actual or simulated combat operations and support?					
b. In garrison and other than a?					

	(0) Not applicable	(1) 1–9%	(2) 10–29%	(3) 30–49%	(4) 50–69%	(5) 70–89%	(6) 90–100%
2. PERCENT OF TOTAL TIME SPENT ON THIS DUTY MODULE							
a. In actual or simulated combat operations and support?							
b. In garrison and other than a?							

	(0) Not applicable	(1) Least critical	(2) Average	(3) Critical	(4) The most critical
3. RELATIVE CRITICALITY OF THIS PART (MODULE) TO ENTIRE JOB					
a. In actual or simulated combat operations and support?					
b. In garrison and other than a?					

Figure 1. Example of duty module used in field testing.

more accurate, objective, and detailed in their evaluation. The information on specific shortcomings rated on the module scoring sheet could be used to improve subsequent performance.

The objective of the module scoring plan was to determine the applicability of duty modules as a proficiency measurement technique in an ATT situation. Both individual performance and unit effectiveness were measured. Unit umpires completed score sheets on both individuals and units, using the prepared instructions and categories, under the guidance of American Institutes for Research (AIR) field representatives. Umpires completed both the forms developed by AIR and their own unit score sheets normally used for the official grading. Two AIR representatives accompanied the platoons through the field tests.

As stated previously, 31 enlisted duty modules and 93 officer duty modules had been developed for infantry personnel. These were designed for duty assignments at the company level, but with some coverage at the battalion echelon. These duty modules described the complete spectrum of tasks performed by infantry enlisted personnel at that level. In a given ATT, only certain duty modules were expected to be applicable. Only eight of the enlisted modules and two of the officer modules were found to be applicable. They were as follows:

Enlisted duty module no.	Title
A-2	Performs unit supervision and control of personnel.
C-1	Operates unit tactical communications equipment (excluding use of Morse code).
E-1	Prepares and employs maps, charts, and instruments in land navigation.
E-4	Emplaces, reports, and neutralizes tactical obstacles.
E-7	Participates in ground tactical operations as member of a maneuver unit.
E-9	Engages enemy in close combat with individual weapons and machine guns.
E-10	Engages enemy with recoilless rifles and direct fire missiles.
G-1	Performs user maintenance on individual and unit equipment and weapons (excluding motor vehicles).

Officer duty module no.	Title
O-U-1	Directs and controls tactical employment of unit.
O-X-1	Participates individually and directly in ground combat.

The umpires who scored the platoon's performance during the ATT were asked to evaluate the enlisted personnel in the platoon with respect to each relevant task in each of the eight duty modules that were applicable to the ATT.

Platoon overall scores achieved under the new procedures were generally consistent with those derived under the standard Army "adjectival" rating procedure. Differences may be attributable to the greater specificity of the modular system as contrasted with the reliance upon "overall" judgment in the Army system. Under the modular evaluation, three platoons achieved an overall grade of "superior," and the rest attained an overall grade of "satisfactory"; under the Army adjectival rating system (converted to numerical grades), one platoon received a grade of "superior" and the rest attained the grade of "satisfactory."

SUMMARY AND CONCLUSIONS

A major product of this research was the development of a technique for identifying and classifying work activities at a level somewhere between a job and a task. This new concept has been termed duty module. The duty module can be applied in areas of both manpower requirements and personnel resources, facilitating communication between those involved in both the supply and demand levels of personnel management. Among possible duty module applications is the more objective and precise definition of training requirements and of individual and unit performance evaluations.

Duty modules are defined primarily in terms of "probability of association" among tasks (where the tasks in particular job areas tend to cluster logically and/or statistically together over a wide variety of jobs). Modules are developed by examining task inventory and/or field job analysis data for a variety of different occupational specialties. A new duty module is examined for compatibility with field assignment practices and actual utilization of personnel and MOS in individual Army units. This developmental process is continued until the duty module is established as a common element of work activity description for both personnel resources and manpower requirements.

Two experimental sets of duty modules were developed, one for officers and one for enlisted personnel. These modules were initially designed by grouping together tasks after examining detailed task inventory and/or job analysis data for a variety of different occupational specialties. Task inventories based upon the tentative duty modules were then administered to 334 enlisted infantry company personnel and 518 Infantry and Quartermaster Branch officers. The component tasks defining each module were studied for probability of association, and the duty modules were revised. The modules were then evaluated in terms of their comprehensiveness and utility for manpower planning purposes by preparing unit capability tables in which the relationship between duty modules and the mission statements for organizational units was indicated. The umpires conducting ATTs for 15 infantry platoons were then asked to describe the performance of the officers and enlisted personnel in duty module terms by using checklists and rating forms specifically developed for that purpose. The relationships between duty module performance and the test scores received by the unit as a whole were then examined.

Thirty-one enlisted and 93 officer job content modules were developed in the manner described. Field reactions to using the duty modules as a way of describing work activity requirements were found to be favorable, and procedures for relating duty module performance to unit performance were identified.

The duty module concept appears to be viable and valuable. The possibilities for improving both officer and enlisted job structure are promising and further work on the development of duty modules appears justified. The ATT results suggest that the duty module concept may well have a role in performance evaluation. Its applicability to periodic efficiency reports should be explored. A number of innovative personnel system techniques and procedures can be designed from the duty module concept, and some of these (e.g., improved specification of training requirements) are now within the current state-of-the-art. However, note that, since duty modules are intended to be generally applicable to virtually all occupational specialties, much of the future work must extend the duty module concept to other officer branches and enlisted occupational specialties. There is further need to evaluate the duty module concept in terms of its implications for various kinds of management decisionmaking.

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1 HQDA (DAMA-AR)
1 HQDA (DAPE-HRE-PO)
1 HQDA (SGRD-ID)
1 HQDA (DAMI-DOT-C)
1 HQDA (DAPC-PMZ-A)
1 HQDA (DACH-PPZ-A)
1 HQDA (DAPE-HRE)
1 HQDA (DAPE-MPO-C)
1 HQDA (DAPE-DW)
1 HQDA (DAPE-HRL)
1 HQDA (DAPE-CPS)
1 HQDA (DAFD-MFA)
1 HQDA (DARD-ARS-P)
1 HQDA (DAPC-PAS-A)
1 HQDA (DUSA-OR)
1 HQDA (DAMO-RQR)
1 HQDA (DASG)
1 HQDA (DA10-PI)
1 Chief, Consult Div (DA-OTSG), Adelphi, MD
1 Mil Asst, Hum Res, ODDR&E, OAD (E&LS)
1 HQ USARAL, APO Seattle, ATTN: ARAGP-R
1 HQ First Army, ATTN: AFKA-OI TI
2 HQ Fifth Army, Ft Sam Houston
1 Dir, Army Stf Studies Ofc, ATTN: OAVCSA (DSP)
1 Ofc Chief of Stf, Studies Ofc
1 DCSPER, ATTN: CPS/OCP
1 The Army Lib, Pentagon, ATTN: RSB Chief
1 The Army Lib, Pentagon, ATTN: ANRAL
1 Ofc, Asst Sect of the Army (R&D)
1 Tech Support Ofc, OJCS
1 USASA, Arlington, ATTN: IARD-T
1 USA Rsch Ofc, Durham, ATTN: Life Sciences Dir
2 USARIEM, Natick, ATTN: SGRD-UE-CA
1 USATTC, Ft Clayton, ATTN: STETC-MO-A
1 USAIMA, Ft Bragg, ATTN: ATSU-CTD-OM
1 USAIMA, Ft Bragg, ATTN: Marquat Lib
1 US WAC Ctr & Sch, Ft McClellan, ATTN: Lib
1 US WAC Ctr & Sch, Ft McClellan, ATTN: Tng Dir
1 USA Quartermaster Sch, Ft Lee, ATTN: ATSM-TE
1 Intelligence Material Dev Ofc, EWL, Ft Holabird
1 USA SE Signal Sch, Ft Gordon, ATTN: ATSO-EA
1 USA Chaplain Ctr & Sch, Ft Hamilton, ATTN: ATSC-TE-RD
1 USATSCH, Ft Eustis, ATTN: Educ Advisor
1 USA War College, Carlisle Barracks, ATTN: Lib
2 WRAIR, Neuropsychiatry Div
1 DLI, SDA, Monterey
1 USA Concept Anal Agcy, Bethesda, ATTN: MOCA-MR
1 USA Concept Anal Agcy, Bethesda, ATTN: MOCA-JF
1 USA Arctic Test Ctr, APO Seattle, ATTN: STEAC-PL-MI
1 USA Arctic Test Ctr, APO Seattle, ATTN: AMSTE-PL-TS
1 USA Armament Cmd, Redstone Arsenal, ATTN: ATSK-TEM
1 USA Armament Cmd, Rock Island, ATTN: AMSAR-TDC
1 FAA-NAFEC, Atlantic City, ATTN: Library
1 FAA-NAFEC, Atlantic City, ATTN: Human Engr Br
1 FAA Aeronautical Ctr, Oklahoma City, ATTN: AAC-44D
2 USA Fld Arty Sch, Ft Sill, ATTN: Library
1 USA Armor Sch, Ft Knox, ATTN: Library
1 USA Armor Sch, Ft Knox, ATTN: ATSB-DI-E
1 USA Armor Sch, Ft Knox, ATTN: ATSB-DT-TP
1 USA Armor Sch, Ft Knox, ATTN: ATSB-CD-AD
2 HQUSACDEC, Ft Ord, ATTN: Library
1 HQUSACDEC, Ft Ord, ATTN: ATEC-EX-E -Hum Factors
2 USAEEC, Ft Benjamin Harrison, ATTN: Library
1 USAPACDC, Ft Benjamin Harrison, ATTN: ATCP-HR
1 USA Comm-Elect Sch, Ft Monmouth, ATTN: ATSN-EA
1 USAEC, Ft Monmouth, ATTN: AMSEL-CT-HDP
1 USAEC, Ft Monmouth, ATTN: AMSEL-PA-P
1 USAEC, Ft Monmouth, ATTN: AMSEL-SI-CB
1 USAEC, Ft Monmouth, ATTN: C, Facl Dev Br
1 USA Materials Sys Anal Agcy, Aberdeen, ATTN: AMXSY-P
1 Edgewood Arsenal, Aberdeen, ATTN: SAREA-BL-H
1 USA Ord Ctr & Sch, Aberdeen, ATTN: ATSL-TEM-C
2 USA Hum Engr Lab, Aberdeen, ATTN: Library/Dir
1 USA Combat Arms Tng Bd, Ft Benning, ATTN: Ad Supervisor
1 USA Infantry Hum Rsch Unit, Ft Benning, ATTN: Chief
1 USA Infantry Bd, Ft Benning, ATTN: STEBC-TE-T
1 USASMA, Ft Bliss, ATTN: ATSS-LRC
1 USA Air Def Sch, Ft Bliss, ATTN: ATSA CTD ME
1 USA Air Def Sch, Ft Bliss, ATTN: Tech Lib
1 USA Air Def Bd, Ft Bliss, ATTN: FILES
1 USA Air Def Bd, Ft Bliss, ATTN: STEBD-PO
1 USA Cmd & General Stf College, Ft Leavenworth, ATTN: Lib
1 USA Cmd & General Stf College, Ft Leavenworth, ATTN: ATSW-SE-L
1 USA Cmd & General Stf College, Ft Leavenworth, ATTN: Ed Advisor
1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: DepCdr
1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: CCS
1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: ATCASA
1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: ATCACO-E
1 USA Combined Arms Cmbt Dev Act, Ft Leavenworth, ATTN: ATCACC-CI
1 USAECOM, Night Vision Lab, Ft Belvoir, ATTN: AMSEL-NV-SD
3 USA Computer Sys Cmd, Ft Belvoir, ATTN: Tech Library
1 USAMERDC, Ft Belvoir, ATTN: STSFB-DQ
1 USA Eng Sch, Ft Belvoir, ATTN: Library
1 USA Topographic Lab, Ft Belvoir, ATTN: ETL TD-S
1 USA Topographic Lab, Ft Belvoir, ATTN: STINFO Center
1 USA Topographic Lab, Ft Belvoir, ATTN: ETL GSL
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: CTD MS
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATS-CTD-MS
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-TE
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-TEX-GS
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-CTS-OR
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-CTD-DT
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-CTD-CS
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: DAS/SRD
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: ATSI-TEM
1 USA Intelligence Ctr & Sch, Ft Huachuca, ATTN: Library
1 CDR, HQ Ft Huachuca, ATTN: Tech Ref Div
2 CDR, USA Electronic Prvg Grd, ATTN: STEEP-MT-S
1 HQ, TCATA, ATTN: Tech Library
1 HQ, TCATA, ATTN: AT CAT-OP-Q, Ft Hood
1 USA Recruiting Cmd, Ft Sheridan, ATTN: USARCPM-P
1 Senior Army Adv., USAFAGOD/TAC, Elgin AF Aux Fld No. 9
1 HQ, USARPAC, DCSPER, APO SF 96558, ATTN: GPPE-SE
1 Stimson Lib, Academy of Health Sciences, Ft Sam Houston
1 Marine Corps Inst., ATTN: Dean-MCI
1 HQ, USMC, Commandant, ATTN: Code MTMT
1 HQ, USMC, Commandant, ATTN: Code MPI-20-28
2 USCG Academy, New London, ATTN: Admission
2 USCG Academy, New London, ATTN: Library
1 USCG Training Ctr, NY, ATTN: CO
1 USCG Training Ctr, NY, ATTN: Educ Svc Ofc
1 USCG, Psychol Res Br, DC, ATTN: GP 1/62
1 HQ Mid-Range Br, MC Det, Quantico, ATTN: P&S Div

1 US Marine Corps Liaison Ofc, AMC, Alexandria, ATTN: AMCGS-F
1 USATRADOC, Ft Monroe, ATTN: ATRO-ED
6 USATRADOC, Ft Monroe, ATTN: ATPR-AD
1 USATRADOC, Ft Monroe, ATTN: ATTS-EA
1 USA Forces Cmd, Ft McPherson, ATTN: Library
2 USA Aviation Test Bd, Ft Rucker, ATTN: STEBG-PO
1 USA Agcy for Aviation Safety, Ft Rucker, ATTN: Library
1 USA Agcy for Aviation Safety, Ft Rucker, ATTN: Educ Advisor
1 USA Aviation Sch, Ft Rucker, ATTN: PO Drawer O
1 HQUSA Aviation Sys Cmd, St Louis, ATTN: AMSAV-ZDR
2 USA Aviation Sys Test Act., Edwards AFB, ATTN: SAVTE-T
1 USA Air Def Sch, Ft Bliss, ATTN: ATSA TEM
1 USA Air Mobility Rsch & Dev Lab, Moffett Fld, ATTN: SAVDL-AS
1 USA Aviation Sch, Res Tng Mgt, Ft Rucker, ATTN: ATST-T-RTM
1 USA Aviation Sch, CO, Ft Rucker, ATTN: ATST-D-A
1 HQ, DARCOM, Alexandria, ATTN: AMXCD-TL
1 HQ, DARCOM, Alexandria, ATTN: CDR
1 US Military Academy, West Point, ATTN: Serials Unit
1 US Military Academy, West Point, ATTN: Ofc of Milt Ldrshp
1 US Military Academy, West Point, ATTN: MAOR
1 USA Standardization Gp, UK, FPO NY, ATTN: MASE-GC
1 Ofc of Naval Rsch, Arlington, ATTN: Code 452
3 Ofc of Naval Rsch, Arlington, ATTN: Code 458
1 Ofc of Naval Rsch, Arlington, ATTN: Code 450
1 Ofc of Naval Rsch, Arlington, ATTN: Code 441
1 Naval Aerospc Med Res Lab, Pensacola, ATTN: Acous Sch Div
1 Naval Aerospc Med Res Lab, Pensacola, ATTN: Code L51
1 Naval Aerospc Med Res Lab, Pensacola, ATTN: Code L5
1 Chief of NavPers, ATTN: Pers-OR
1 NAVAIRSTA, Norfolk, ATTN: Safety Ctr
1 Nav Oceanographic, DC, ATTN: Code 6251, Charts & Tech
1 Center of Naval Anal, ATTN: Doc Ctr
1 NavAirSysCom, ATTN: AIR-5313C
1 Nav BuMed, ATTN: 713
1 NavHelicopterSubSqua 2, FPO SF 96601
1 AFHRL (FT) Williams AFB
1 AFHRL (TT) Lowry AFB
1 AFHRL (AS) WPAFB, OH
2 AFHRL (DOJZ) Brooks AFB
1 AFHRL (DOJN) Lackland AFB
1 HQUSAF (INYSD)
1 HQUSAF (DPXXA)
1 AFVTG (RD) Randolph AFB
3 AMRL (HE) WPAFB, OH
2 AF Inst of Tech, WPAFB, OH, ATTN: ENE/SL
1 ATC (XPTD) Randolph AFB
1 USAF AeroMed Lib, Brooks AFB (SUL-4), ATTN: DOC SEC
1 AFOSR (NL), Arlington
1 AF Log Cmd, McClellan AFB, ATTN: ALC/DPCRB
1 Air Force Academy, CO, ATTN: Dept of Bel Scn
5 NavPers & Dev Ctr, San Diego
2 Navy Med Neuropsychiatric Rsch Unit, San Diego
1 Nav Electronic Lab, San Diego, ATTN: Res Lab
1 Nav TrngCen, San Diego, ATTN: Code 9000-Lib
1 NavPostGraSch, Monterey, ATTN: Code 55As
1 NavPostGraSch, Monterey, ATTN: Code 2124
1 NavTrngEquipCtr, Orlando, ATTN: Tech Lib
1 US Dept of Labor, DC, ATTN: Manpower Admin
1 US Dept of Justice, DC, ATTN: Drug Enforce Admin
1 Nat Bur of Standards, DC, ATTN: Computer Info Section
1 Nat Clearing House for MH-Info, Rockville
1 Denver Federal Ctr, Lakewood, ATTN: BLM
12 Defense Documentation Center
4 Dir Psych, Army Hq, Russell Ofcs, Canberra
1 Scientific Advsr, Mil Bd, Army Hq, Russell Ofcs, Canberra
1 Mil and Air Attache, Austrian Embassy
1 Centre de Recherche Des Facteurs, Humaine de la Defense Nationale, Brussels
2 Canadian Joint Staff Washington
1 C/Air Staff, Royal Canadian AF, ATTN: Pers Std Anal Br
3 Chief, Canadian Def Rsch Staff, ATTN: C/CRDS(W)
4 British Def Staff, British Embassy, Washington
1 Def & Civil Inst of Enviro Medicine, Canada
1 AIR CRESS, Kensington, ATTN: Info Sys Br
1 Militaerpsykologisk Tjeneste, Copenhagen
1 Military Attache, French Embassy, ATTN: Doc Sec
1 Medecin Chef, C.E.R.P.A.-Arsenal, Toulon/Naval France
1 Prin Scientific Off, Appl Hum Engr Rsch Div, Ministry of Defense, New Delhi
1 Pers Rsch Ofc Library, AKA, Israel Defense Forces
1 Ministeris van Defensie, DOOP/KL Afd Sociaal Psychologische Zaken, The Hague, Netherlands